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# ENVIRONMENTAL ASSESSMENT BOARD

REPORT ON THE PUBLIC HEARING ON THE  
APPLICATION BY THE CORPORATION OF THE  
CITY OF NORTH BAY FOR APPROVAL OF AN  
EXPANSION OF THE WATER POLLUTION  
CONTROL PLANT

May 20, 1982

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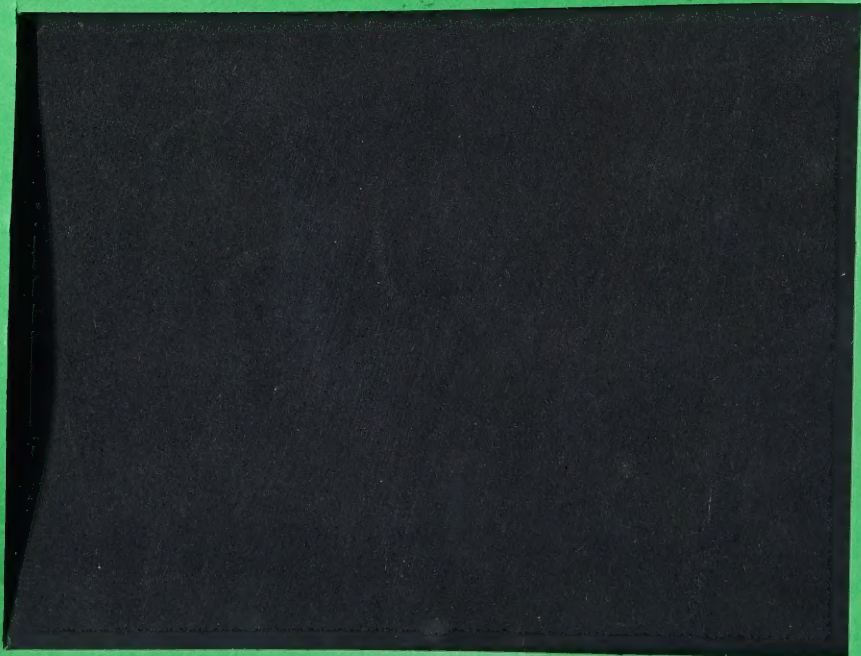




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Environmental  
Assessment  
Board

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REPORT ON THE PUBLIC HEARING ON THE APPLICATION BY THE  
CORPORATION OF THE CITY OF NORTH BAY FOR APPROVAL OF AN  
EXPANSION OF THE WATER POLLUTION CONTROL PLANT

BEFORE:

Mrs. M. G. Munro  
Vice Chairman and  
Hearing Chairman

- and -

Mr. D. M. Coolican  
Board Member

A. INTRODUCTION

1) Purpose of the Hearing

A public hearing was held before the Environmental Assessment Board on April 20th, 1982, in the City of North Bay, to consider, pursuant to Section 6(1) and 26(1) of The Ontario Water Resources Act, an application by the City of North Bay for approval for an expansion of the existing water pollution control plant located in Lot 20, Concession D, City of North Bay, District of Nipissing. The proposed sewage works expansion involves modifications to the existing plant and construction of additional facilities for primary sedimentation, aeration, final clarification, chlorine contact and sludge digestion.

At the outset of the hearing it was established that the required notices had been given.



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## 2) Appearances

For the City of North Bay, Mr. Michael Burke, who called the following witnesses:

- Mr. M. L. Daiter, Director of Planning and Works,  
City of North Bay
- Mr. J. F. Bourne, Vice President, Northland Engineering  
Limited
- Mr. G. Powell, Vice President, Gore and Storrie Limited  
For Rahn Metals and Plastics Limited,
- Mr. D. M. Harris, Vice President, Manufacturing

## 3) Background

The existing water pollution control plant was constructed in two stages, in 1961 as a secondary treatment plant with a capacity of 4 MGD and expanded to process 8 MGD in 1973. The plant currently serves a population of 45,000. The City's total population is 52,000.

Plant flow records show that the plant design capacity was exceeded for extended periods during 1978, 1979 and 1980. The high flows primarily occurred during spring runoff and were exacerbated by the infiltration of storm water into the sanitary sewers and the increased flows in the combined storm and sanitary sewers in the older parts of the municipality.

The Ministry of the Environment has given notice that development in the City should be restricted until additional capacity is available for treatment of sewage.

A 1980 engineering report provided plans for a plant expansion to a 16 MGD capacity to serve a population of 100,000 by the year 2000. Revised population projections led to the





commissioning of the present report which proposes a plant expansion to a capacity of 12 MGD to serve a population of 75,000 by the year 2000.





B. RECOMMENDATIONS

The Board hereby recommends that the application of the Corporation of the City of North Bay for approval of an expansion to the water pollution control plant located in Lot 20, Concession D, City of North Bay, District of Nipissing, be approved subject to the following terms and conditions:

- 1) The design and operational concept for the expansion of the water pollution control plant be that as set out in Exhibits #11, 13 and 14 to this hearing, and that the detailed design plans and specifications are to be submitted to the Ministry of the Environment for its approval.
- 2) That appropriate measures be taken to minimize the impact of construction activities on adjacent land uses.
- 3) That all possible steps be taken to solve the storm water drainage problems in the area of the undertaking.
- 4) That a landscaping plan be developed as part of the final design to improve the aesthetic appearance of the facility.





### C. CONCLUSIONS

The recommendations of the Board are based on the following conclusions:

- 1) The capacity of the existing water pollution control plant has been reached and additional sewage treatment facilities are needed.
- 2) The Official Plan and Zoning By-law policies of the City of North Bay permit the proposed land use.
- 3) The existing site is the best location from environmental and economic perspectives for the proposed undertaking.
- 4) The City has made adequate provision for financing the undertaking.
- 5) The sewage treatment facilities proposed in this application will adequately provide for the sewage treatment requirements of the City until the population has reached 75,000, which it is now expected to do in the year 2000.
- 6) The proposed design and operations of the expanded facility should reduce odor problems.
- 7) Chippewa Creek, which flows into Lake Nipissing to the south of the effluent outflow from the water pollution control plant, drains most of the City of North Bay. The quality of the water at the mouth of the Creek and along the beaches west of the plant does not meet the water management criteria of the Ministry of the Environment. The area of water affected by the discharge from the Creek is also the area of effluent from the outflow of the sewage treatment plant. This area is designated as a



Policy II Area. According to a publication of the Ministry of the Environmental entitled "Water Management - Goals, Objectives and Implementation Procedures", a Policy II Area is one with water quality not meeting the objectives, but where the Ministry of the Environment permits no further degradation and requires that all practical measures be taken to upgrade the water quality. The evidence of the expert witness for the applicant was that water quality objectives cannot be achieved in the vicinity of the outflow from the plant because of background levels of pollution caused by the creek discharge. Therefore a mixing zone of 100 metres wide, measured at the outflow port and perpendicular to the shoreline, and 1,000 metres long, parallel to the shoreline, has been designated. Within the mixing zone water quality objectives for fecal and total coliforms, chlorine, free ammonia, and total phosphorus will not be met. The evidence was that there would be no further degradation of the water by the effluent plume outside of the mixing zone.

- 8) The City's evidence established that appropriate measures will be taken to minimize the impact of the construction activities on adjacent land uses. During excavation adjacent to the existing industrial buildings care should be exercised to eliminate the possibility of damage to building foundations and manufacturing processes. Counsel for the City has undertaken to negotiate with





adjacent industrial interests relative to the insurance coverage carried by the construction contractor.

- 9) There are, at present, storm water drainage problems in the vicinity of the sewage treatment plant and these problems may be aggravated during new construction and by the completed project. The City has given its undertaking to take all possible steps to improve the drainage flows.
- 10) The representative of the industrial owner of the lands adjacent to the sewage treatment plant has requested that the location of the transformer station be changed so that his company could lease the thus vacant parcel of land to the east of the sewage treatment plant. However, the City's evidence established that the proposed location of the transformer station will allow for further plant expansion. In addition, relocation of the transformer station would necessitate high voltage lines crossing over the sewage treatment plant and closer to the residences on Queen Street. The Board believes that the location of the transformer station is a matter to be decided by the City of North Bay.
- 11) The suggestion by a resident of Queen Street that property values have been adversely affected was not substantiated by evidence before the Board. The homes in question are residential uses in an area designated open space and the City has no plans for acquisition.
- 12) The final design for the proposed expansion should include provisions for screening the site by tree planting and landscaping.





D. SUMMARY OF EVIDENCE

1) Site Location and Land Use Policies

Evidence concerning the site location and the land use policies of the municipality was given by Mr. M. Daiter, Director of Planning and Works for the City.

Mr. Daiter introduced as evidence Land Use Plan B, North Bay Official Plan (Exhibit #2), and the Site Plans for the Sewage Treatment Plant (Exhibit #3). The existing plant is located in an industrial zone which allows the sewage treatment plant use. The plant is bounded on the east and north by industrial uses. The areas to the west, between the sewage treatment plant and Lake Nipissing, and to the south, between the plant and Chippewa Creek, are designated as open space. The City, in co-operation with the North Bay-Mattawa Conservation Authority, has been gradually acquiring the lands between the plant and the Chippewa Creek. It has purchased fifty of these properties to date with one more to be acquired on Stanley Street (Exhibit #7). These lands are in the 25-year flood plain for Chippewa Creek. There are six houses fronting on Queen Street between the sewage treatment plant and the lake and these homes are considered to be legal non-conforming uses since the area has an open space designation. Mr. Daiter stated in response to a question from one of the residents that the City has no plans to acquire these properties.

2) Financing

Evidence was given by Mr. Daiter (Exhibit #5) that the cost of the proposed expansion, an estimated \$10.5 million, will be met by debentures, government grants and a low interest loan from



the Ministry of the Environment. The necessary approvals for this funding have been obtained.

3) Plant Design and Operations

Evidence concerning the consultant's study for the proposed expansion was given by Mr. J. F. Bourne, Vice President of Northland Engineering Limited.

Mr. Bourne explained that the first stage in planning for the expansion was to determine that the water pollution control plant was in the best location. It was his conclusion that to abandon the existing plant or to establish an additional facility would not be cost effective. The sewer system depends upon gravity flow to the existing plant, the existing effluent outlet to Lake Nipissing does not need to be enlarged for this proposal and the land use has been established. An additional plant would also mean a duplication of operating costs. Mr. Bourne stated that the municipal water supply is drawn from Trout Lake.

Evidence concerning the design and operations of the proposed expansion was given by Mr. George Powell, Vice President, Gore and Storrie Limited.

Mr. Powell stated that the proposed expansion from 8 MGD to 12 MGD capacity would serve the population of 75,000 expected to be realized by the year 2000. His calculations have been based on a per capita flow of 160 gallons per capita per day which is a higher per capita flow calculation than the usual 100 gallons per capita per day because of high groundwater levels, high infiltration rates of storm water into sanitary sewers, and the fact that older sections of the City are served by combined sanitary and storm sewers.





The sewage treatment process in the expanded plant will be the same as that of the existing plant.

The design data of the proposed expansion is described in technical detail in Appendix A to the Engineering Report (Exhibit #11). Using the Layout Plan (Exhibit #11-C) Mr. Powell highlighted the significant changes. The present aeration tanks will be used as primary settling tanks. New aeration tanks , which will be deeper and covered, will provide more efficient aeration and better odor control. Clarifiers will be installed to remove phosphorus and additional sludge treatment capacity will be provided. Larger pumps are to be installed and, since additional power will be needed, a new and larger transformer station is to be added. The total site of 8 acres is large enough for an ultimate 24 MGD plant and therefore the new transformer station is to be located in the southeast corner of the site to allow for maximum site usage in the future. The proposed design includes a new gas room and waste gas burner where sewage gases will be collected and burned to heat the plant and the sludge digesters. The efficient collecting and burning of gas emissions will also contribute to better odor control.

Sewage sludge will be dewatered and deposited at the local landfill site. Investigations have shown that the sludge is acceptable for agricultural use and this may be an alternative disposal method.

Equipment and buildings have been designed to cause no more than 85 decibels of noise at one metre from the equipment. This is an acceptable limit and an improvement over present operations.





In addition to staff requirements, the vehicular traffic amounts now to approximately 13 trucks per week. It is anticipated that by the year 2000 the traffic may increase to 20 vehicles per week.

The construction period is expected to be one and one half to two years and the expanded plant should be in operation by 1984. The contract specifications will require the construction contractor to take appropriate measures to minimize the impact on adjacent land uses from dust and noise during the construction period. Sheet piling of the excavation will be required to protect the foundations of the adjacent buildings.

#### 4) Water Quality

The consulting engineers prepared an Environmental Impact Assessment of the water pollution control plant outlet in March 1981 (Exhibit #13) and a supplementary report in May 1981 (Exhibit #14).

Mr. Powell testified that the water quality of Lake Nipissing shows no major evidence of pollution except at the outflow of Chippewa Creek which causes water quality conditions along the adjacent beach that exceed Ministry of the Environment criteria in four areas - total coliforms, fecal coliforms, total phosphorus and free ammonia.

The consultants employed modelling techniques to determine the effects of the effluent from the proposed expansion. Mr. Powell stated that his studies showed that the lake is very shallow and the outfall, which extends 322 metres (1056 feet) into the lake, discharges into 2.4 metres (8 feet) of water. Extending the effluent outfall to deeper water offshore would



require a larger outfall and pumping as the water depth is only 1 metre deeper 300 metres farther offshore from the existing outfall. Because the prevailing winds move the effluent plume towards the shore and westerly along the beach area it is difficult to keep the effluent offshore and to produce jet dilution. Therefore the report defines a mixing zone for the effluent plume of 1000 metres long, parallel to the shoreline, by 100 metres wide (at the base of the plume) perpendicular to the shoreline. This mixing zone is necessary because it is not possible to achieve the water quality objectives of the Ministry of the Environment for fecal and total coliforms, chlorine, free ammonia and total phosphorus in the presence of the high background levels of contaminants from Chippewa Creek. Chlorine has the requirement for the largest mixing zone (Exhibit #13, page 10) and this will be met. The mixing zone is not expected to degrade the water quality for existing uses except for the local impact of ammonia and chlorine on the fishery. There will be no further degradation of the water quality outside of the mixing zone. The Ministry of the Environment has agreed (Exhibit #16) that there is no need for a deviation from Policy II of the Ministry's Water Management Policy document and the Ministries of Natural Resources and Health are aware of these studies.

#### 5) Public Concerns

A presentation (Exhibit #17) was made to the panel by Mr. D. M. Harris, Vice President of Rahn Metals and Plastics Limited, whose plant borders the northeast side of the water pollution control facility.





Mr. Harris expressed concern that the general area experiences inadequate storm water drainage during spring runoff and during heavy summer rains. His company's property at present receives surface drainage from the railway property and Stanley Street to the east. Mr. Harris stated that the surface drainage causes problems now and these problems may be exacerbated by the proposed location of the new aeration tanks which are in the present flow path and their construction may divert more water onto the Rahn lands.

Mr. Harris was also concerned that excavation for the aeration tanks may change groundwater levels and affect the foundation of his company's buildings which are adjacent to the construction area. In addition Mr. Harris expressed concern that pile driving in the area would set up ground vibrations which could affect the company's manufacturing processes and machine tool alignments.

Mr. Harris set forth five concerns that he wished to have satisfied. They are as follows:

1. Water table levels on the Rahn property should not be unduly altered during and after construction.
2. Existing drainage systems should be restored and improved to provide adequate drainage on all properties in the area.
3. Any vibration caused by construction should be monitored and if any effect on their product is established the construction methods should be altered to prevent vibration.



4. That the contractor carry adequate comprehensive general liability insurance with completed operation coverage and including excavation collapse and underpinning coverage. Rahn should be a named insured in the contractor's policy.
5. A pre-construction survey of the Rahn property should be done, to the satisfaction of their insurers, providing a base from which damage caused by any phase of construction can be assessed.

Mr. Harris also requested that the proposed location of the transformer substation be changed in order that Rahn Metals and Plastics Limited could lease this parcel of vacant land from the City for storage and shipping facilities. He suggested that the Company needs this expansion space in order to carry on business in the City.

Mr. Burke, counsel for North Bay, in his final submission stated that the City would take any possible steps to solve the drainage problem. He also stated that soils consultants were studying the area and their recommendations would be included in the final design plan. The requested monitoring for vibration caused by construction would be done.

Mr. Burke also stated that Mr. Harris's request relative to insurance coverage would be reviewed and that the City would work with Rahn Metals and Plastics Limited to try to resolve its concerns.

Speaking to the location of the transformer station, Mr. Burke pointed out that the City had looked at alternative locations but another placement would require that high voltage power lines cross over the sewage treatment plant. In addition,





another location would handicap future expansion programs and would bring the power lines closer to residences on Queen Street.

A letter from Mrs. Betty Grozelle of 621 Queen Street was received by the Board prior to the hearing. Mrs. Grozelle was present but declined to make a presentation to the panel. The letter (Exhibit #18) was read to the panel by Mr. H. Browne, EAB staff.

Mrs. Grozelle has lived in her present home since before the original construction of the water pollution control plant and, in her opinion, the composition of the neighbourhood has been changed substantially. She believes that the market value and resale potential of her property has been adversely affected.

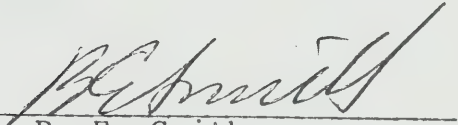
Her recommendations were that there should be fair compensation for the loss in property values resulting from the plant expansion, that screening vegetation should be planted along the perimeter of the plant, and that assurances should be given that, if increased odor problems occur, remedial action will be taken to either correct the problem or to relocate residents.

Earlier evidence given to the Board by the Director of Planning for the City was that Mrs. Grozell's home was one of those considered to be a legal non-conforming use, that is, a residential use in an area designated open space by the City's Official Plan and Zoning By-law.

Evidence was also given concerning the measures being taken to reduce odor problems by covering the aeration tanks and by collecting and burning gas emissions.

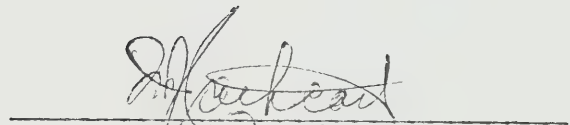


There was no evidence before the Board concerning landscaping plans for the water pollution control plant site.



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B. E. Smith  
Chairman



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M. J. Cathcart  
Board Secretary

May 20, 1982





LIST OF EXHIBITS

1. Document Schedule
2. Official Plan - Schedule B
3. Site Plan
4. Letter dated January 6, 1981, from the Ministers of Northern Affairs and Environment to Mayor Smylie.
5. By-law 192-81
6. Official Plan - Schedule B showing Chippewa Creek drainage basin.
7. Site Plan showing Land Acquisition Program
8. Official Plan - Schedule A - Land uses for entire city
9. Official Plan - Part 2: Land Use and Development Control
10. Zoning By-law 28-80, Section 7.3.1
11. A. Engineering Report 1981 - NorthLand Engineering Ltd.  
and Gore and Storrie Ltd.  
B. Revised Site Plan  
C. Revised Layout Plan  
D. Revised Plan showing Emission Points
12. Engineering Report 1980 - Northland Engineering Ltd.  
and Gore and Storrie Ltd.
13. Environmental Impact Assessment, March 1981 - Gore and Storrie Ltd.
14. Environmental Impact Assessment, May 1981 - Gore and Storrie Ltd.
15. Letter and Memorandum, December 18, 1981 - from the Ministry of the Environment to Northland Engineering Limited.
16. Minutes of Meeting held January 20, 1982.
17. Submission by Mr. D. M. Harris, Vice President, Rahn Metals and Plastics Limited.
18. Letter to Environmental Assessment Board dated April 5, 1982 from Mrs. Betty Grozelle.





